Claims:

1. Tether system for tension leg platforms (4), with tethers (6) having upper and lower pipe sections (1, 2), characterised by the tethers (6) having a stepped reduction of the diameter towards the seabed such that the upper section(s) (1) have positive buoyancy, and such that the upper section(s) (1) compensate for the weight in water of the lower section(s) (2).

2. Tether system for tension leg platforms (4) according to claim 1, characterised by tethers (6) with an increasing pressure resistance as the depth towards the sea-bed increases.

3. Tether system for tension leg platforms, characterised by tethers (6) having pipes of different diameter, with a substantially continuous reduction towards the seabed, and an increased pressure resistance towards the sea-bed.

4. Tether system for tension leg platforms (4) in accordance with claim 1 or 3, characterised by the tether system having a weight in water close t neutral.

5. Tether system for tension leg platforms (4) according to claim 1, characterised by tethers having pipes with at least two stepped reductions of the diameter towards the seabed.

6. Tether system for tension leg platforms (4) according to claim 1, characterised by tethers having pipes with at least two stepped increases of the wall thickness towards the seabed.

7. Tether system for tension leg platforms (4) in accordance with claim 1 or 3, characterised by having upper sections (1) with reduced wall thickness such that th total cross sectional area of th pipe wall is maintained approximately constant over the height.

8. Tether system for tension leg platforms (4) in accordance with claim 1 or 3, characterised by having sections made of steel.

9. Tether system for tension leg platforms (4) in accordance with claim 1 or 3, characterised by having sections made of composite materials.

10. Tethers (6) for deep sea use, characterised by having pipes with a stepped reduction of the diameter towards the seabed.

11. Tethers (6) for deep sea use according to claim 10, characterised by using the tethers on tension leg platforms

12. Tethers (6) for deep sea use, characterised by having decreasing buoyancy towards the seabed